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July 13, 2010

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Washington, DC 20555-0001

**BELL BEND NUCLEAR POWER PLANT  
PARTIAL RESPONSE FOR RAI No. 94  
AND SCHEDULE INFORMATION  
BNP-2010-101      Docket No. 52-039**

- References:
- 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information - Final Letter Nos. 93 and 94 (RAI Nos. 93 and 94) – NSIR-LIB 4443, 4445, e-mail dated April 8, 2010
  - 2) R. R. Sgarro (PPL Bell Bend, LLC) to U.S. Nuclear Regulatory Commission, BNP-2010-159, “Extension Request for RAI Nos. 93 and 94”, dated June 16, 2010

The purpose of this letter is to respond to the Request for Additional Information (RAI) No. 94 identified in the NRC correspondence to PPL Bell Bend, LLC (PPL) (Reference 1). This RAI addresses Onsite Meteorological Measurements Programs as discussed in Chapter 2 of the Final Safety Analysis Report (FSAR) and submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application (COLA).

In Reference 2, PPL advised that additional time would be necessary to complete the responses to the RAI questions and that response to RAI No. 94 questions would be submitted by July 30, 2010.

The enclosure provides our response to RAI No. 94 Questions 02.03.03-4, 02.03.03-5 and 02.03.03-6, which includes revised COLA content. The enclosure also provides a partial response to Question 02.03.03-3 that is related to the pre-operational meteorological tower located at the Susquehanna Steam Electric Station and existing potential obstructions to air flow near the tower. This partial response also includes revised COLA content. The portion of Question 02.03.03-3 that cannot be answered at this time is related to the BBNPP operational meteorological tower and potential obstructions to air flow near the new tower location. The response to this portion of the question is dependent on the final location of structures that are being moved as a result of the planned plant footprint change at the BBNPP site. The response to this portion of Question 02.03.03-3 will be included in the revised COLA FSAR 2.3.3 section submittal to the NRC as a result of the plant footprint change. The target date for this submittal is August 23, 2010.

D102  
NRC

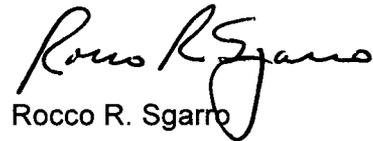
The revised COLA content will be included in the BBNPP COLA at a later date. The only new regulatory commitment contained in this letter is to update the BBNPP COLA at a later date.

If you have any questions, please contact the undersigned at 570.802.8102.

*I declare under penalty of perjury that the foregoing is true and correct.*

Executed on July 13, 2010

Respectfully,

A handwritten signature in black ink, appearing to read "Rocco R. Sgarro". The signature is written in a cursive style with a large, looped initial "R".

Rocco R. Sgarro

RRS/dw

Enclosure: As stated

cc: (w/o Enclosures)

Mr. Samuel J. Collins  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
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Mr. Michael Canova  
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Enclosure

Response to NRC Request for Additional Information No. 94  
Questions 02.03.03-4, 02.03.03-5 and 02.03.03-6  
and Partial Response to Question 02.03.03-3  
Bell Bend Nuclear Power Plant

**Question 02.03.03-3:**

As stated in Standard Review Plan (SRP) Section 2.3.3, SRP Acceptance Criteria (1a) and (1b), and Regulatory Guide 1.206, Section C.1.2.3.3, the staff requests that additional information be added to FSAR Section 2.3.3 regarding the physical parameters of the potential obstructions to the pre-operational and operational towers. Listed obstructions should include the salt storage building, reactor building, turbine building, domestic water storage tank, emergency diesel generator (EDG) building, service and administration building, and parameters should include grade elevation, height, width, distance and wind direction sector relative to meteorological towers, including width at top and bottom of cooling tower. Also, for the proposed operational tower, please include both the northern and southern tree lines and grade elevations for each obstruction listed in the tables.

**Response:**

The Susquehanna Steam Electric Station (SSES) meteorological tower is the BBNPP pre-operational meteorological tower. Additional information related to physical parameters of existing man-made potential obstructions to air flow for the pre-operational meteorological tower will be added to BBNPP FSAR Section 2.3.3 and Environmental Report Section 6.4.1 as indicated below.

Information related to the BBNPP operational meteorological tower will be provided after the relocation of the plant footprint is complete as described in the RAI response cover letter.

**COLA Impact:**

The BBNPP FSAR will be revised as follows:

**2.3.3.1.6 Nearby Obstructions to Air Flow**

Downwind distances from the SSES meteorological tower to nearby (within 0.5 mi (0.8 km)) obstructions to air flow were determined using U.S. Geological Survey topographical maps. Highest terrain is to the west and north. Lowest terrain is to the northeast through southeast (river valley). ~~Table 2.3-145 presents the distances to nearby obstructions to air flow in each downwind sector.~~

Table 2.3-183 presents information on existing man-made potential obstructions to air flow for the SSES meteorological tower.

Table 2.3-183 will be added to the FSAR as follows:

**Table 2.3-183 - {Existing Man-Made Potential Obstructions to Air Flow for the SSES Meteorological Tower}**

<u>Obstruction</u>	<u>Wind Direction and Sector</u>	<u>Distance ft (m)</u>	<u>Grade ft (m)</u>	<u>Height ft (m)</u>	<u>Largest Bottom Dimension ft (m)</u>	<u>Largest Top Dimension ft (m)</u>
<u>SSES CWS Cooling Tower South Unit 2 (centerline)</u>	<u>271 W</u>	<u>1958 (597)</u>	<u>690 (210)</u>	<u>540 (165)</u>	<u>419 (128)</u>	<u>301 (92)</u>
<u>SSES CWS Cooling Tower North Unit 1 (centerline)</u>	<u>291 WNW</u>	<u>2108 (643)</u>	<u>710 (216)</u>	<u>540 (165)</u>	<u>419 (128)</u>	<u>301 (92)</u>
<u>SSES Reactor Building Unit 2 (centerline) (Note 1)</u>	<u>284 WNW</u>	<u>1219 (372)</u>	<u>670 (204)</u>	<u>203.125 (62)</u>	<u>323 (98)</u>	<u>N/A</u>
<u>SSES Turbine Building Unit 2 (centerline) (Note 1)</u>	<u>280 W</u>	<u>1409 (429)</u>	<u>676 (206)</u>	<u>112.21 (34)</u>	<u>630 (192)</u>	<u>N/A</u>
<u>SSES Emergency Diesel Generator (E)</u>	<u>301 WNW</u>	<u>1100 (335)</u>	<u>656 (200)</u>	<u>85.5 (26)</u>	<u>80 (24)</u>	<u>N/A</u>
<u>SSES Emergency Diesel Generator (A-D)</u>	<u>297 WNW</u>	<u>1336 (407)</u>	<u>660 (201)</u>	<u>75.5 (23)</u>	<u>120 (37)</u>	<u>N/A</u>
<u>SSES Service and Administration Building</u>	<u>302 WNW</u>	<u>1430 (436)</u>	<u>676 (206)</u>	<u>66 (20)</u>	<u>150.5 (46)</u>	<u>N/A</u>
<u>SSES Salt Dome Storage</u>	<u>277 W</u>	<u>209 (64)</u>	<u>655 (200)</u>	<u>60 (18)</u>	<u>60 (18)</u>	<u>N/A</u>
<u>SSES Domestic Water Storage Tank</u>	<u>321 NW</u>	<u>432/132</u>	<u>660 (201)</u>	<u>46 (14)</u>	<u>46 (14)</u>	<u>N/A</u>

-Note 1: SSES Unit 2 Reactor Building and Turbine Building are closer to the SSES Meteorological Tower than the Unit 1 structures.

The BBNPP Environmental Report will be revised as follows:

**6.4.1.6 Nearby Obstructions to Air Flow**

Downwind distances from the SSES meteorological tower to nearby (within 0.5 mi (0.8 km)) obstructions to air flow were determined using U.S. Geological Survey topographical maps. Highest terrain is to the west and north. Lowest terrain is to the northeast through southeast (river valley). Table 6.4-2 presents the distances to nearby obstructions to air flow in each downwind sector.

Table 6.4-6 presents information on existing man-made potential obstructions to air flow for the SSES meteorological tower.

Table 6.4-2 will be deleted in its entirety from the Environmental Report.

Table 6.4-6 will be added to the Environmental Report as follows:

**Table 6.4-6: {Existing Man-Made Potential Obstructions to Air Flow for the SSES Meteorological Tower}**

<u>Obstruction</u>	<u>Wind Direction and Sector</u>	<u>Distance ft (m)</u>	<u>Grade ft (m)</u>	<u>Height ft (m)</u>	<u>Largest Bottom Dimension ft (m)</u>	<u>Largest Top Dimension ft (m)</u>
<u>SSES CWS Cooling Tower South Unit 2 (centerline)</u>	<u>271 W</u>	<u>1958 (597)</u>	<u>690 (210)</u>	<u>540 (165)</u>	<u>419 (128)</u>	<u>301 (92)</u>
<u>SSES CWS Cooling Tower North Unit 1 (centerline)</u>	<u>291 WNW</u>	<u>2108 (643)</u>	<u>710 (216)</u>	<u>540 (165)</u>	<u>419 (128)</u>	<u>301 (92)</u>
<u>SSES Reactor Building Unit 2 (centerline) (Note 1)</u>	<u>284 WNW</u>	<u>1219 (372)</u>	<u>670 (204)</u>	<u>203.125 (62)</u>	<u>323 (98)</u>	<u>N/A</u>
<u>SSES Turbine Building Unit 2 (centerline) (Note 1)</u>	<u>280 W</u>	<u>1409 (429)</u>	<u>676 (206)</u>	<u>112.21 (34)</u>	<u>630 (192)</u>	<u>N/A</u>
<u>SSES Emergency Diesel Generator (E)</u>	<u>301 WNW</u>	<u>1100 (335)</u>	<u>656 (200)</u>	<u>85.5 (26)</u>	<u>80 (24)</u>	<u>N/A</u>
<u>SSES Emergency Diesel Generator (A-D)</u>	<u>297 WNW</u>	<u>1336 (407)</u>	<u>660 (201)</u>	<u>75.5 (23)</u>	<u>120 (37)</u>	<u>N/A</u>
<u>SSES Service and Administration Building</u>	<u>302 WNW</u>	<u>1430 (436)</u>	<u>676 (206)</u>	<u>66 (20)</u>	<u>150.5 (46)</u>	<u>N/A</u>
<u>SSES Salt Dome Storage</u>	<u>277 W</u>	<u>209 (64)</u>	<u>655 (200)</u>	<u>60 (18)</u>	<u>60 (18)</u>	<u>N/A</u>
<u>SSES Domestic Water Storage Tank</u>	<u>321 NW</u>	<u>432/132</u>	<u>660 (201)</u>	<u>46 (14)</u>	<u>46 (14)</u>	<u>N/A</u>

-Note 1: SSES Unit 2 Reactor Building and Turbine Building are closer to the SSES Meteorological Tower than the Unit 1 structures.

**Question 02.03.03-4:**

Regulatory Guide (RG) 1.23, Regulatory Position C.3., provides guidance on positioning wind sensors on towers. During a BBNPP meteorological site audit July 21-22, 2009, the applicant stated that the rationale for the original orientation of the instruments on the Susquehanna Steam Electric Station (SSES) meteorological tower is unknown because they were placed there in the 1970s. The staff requests that the applicant update Final Safety Analysis Report (FSAR) Sections 2.3.3.1.3 and 2.3.3.2.3 to include information related to the orientation of instruments for the SSES and BBNPP towers as regards the guidance in RG 1.23.

**Response:**

Regulatory Guide (RG) 1.23, Revision 1, Regulatory Position C.3 states in paragraph three:

“Because the tower structure can affect downwind measurements, wind sensors on the side of a tower should be mounted at a distance equal to at least twice the longest horizontal dimension of the tower (e.g., the side of a triangular tower). The sensors should be on the upwind side of the mounting object in areas with a dominant prevailing wind direction. In areas with two distinct prevailing wind directions (e.g., mountain valleys), the sensors should be mounted in a direction perpendicular to the primary two directions.”

The Susquehanna Steam Electric Station (SSES) meteorological tower (which is the BBNPP pre-operational meteorological tower) is located east of the SSES power block. The instruments are mounted on a boom that is at least twice the length of the tower side. However, the boom is not mounted on the tower such that the instruments are approximately perpendicular to the primary two wind directions. This tower was installed before RG 1.23, Revision 1, was published.

The BBNPP operational meteorological tower will be sited, and wind sensors oriented, taking into account the guidance from RG 1.23, Revision 1, Regulatory Position C.3.

The BBNPP FSAR Section 2.3.3 and Environmental Report Section 6.4 will be revised as shown below.

**COLA Impact:**

The BBNPP FSAR will be revised as follows:

**2.3.3.1.3 Instrumentation**

Precipitation is measured at the base of the tower using a heated tipping bucket rain gauge. This is a remote reading rain gauge which produces a signal proportional to total rainfall.

The wind sensors are mounted on a boom that is at least twice the length of the tower side. However, the boom is not mounted on the tower such that the instruments are approximately perpendicular to the primary two wind directions. This tower was installed before RG 1.23, Revision 1, was published.

### **2.3.3.2.3 Instrumentation**

Information relating to the primary meteorological tower is a 200 ft (61 m) steel framed tower.

The primary data recording system used for the BBNPP meteorological tower is a digital data acquisition system. All telemetry transmitters, translators and a data logger are housed in a weatherproof cinder block building. This building has thermostatically controlled heating and air conditioning. The secondary recording systems is the Process Information and Control System (PICS).

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield. BBNPP meteorological tower instrument types, specifications and accuracies are presented in Table 2.3-182.

The BBNPP Environmental Report will be revised as follows:

#### **6.4.1.3 Instrumentation**

Precipitation is measured at the base of the tower using a heated tipping bucket rain gauge. This is a remote reading rain gauge which produces a signal proportional to total rainfall.

The wind sensors are mounted on a boom that is at least twice the length of the tower side. However, the boom is not mounted on the tower such that the instruments are approximately perpendicular to the primary two wind directions. This tower was installed before RG 1.23, Revision 1, was published.

#### **6.4.2.3 Instrumentation**

The BBNPP meteorological tower was sited and wind sensors oriented according to the guidance provided in RG 1.23, Revision 1, Regulatory Position C.3.

The instrumentation for the meteorological tower is outlined in Table 6.4-3.

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield.

**Question 02.03.03-5:**

FSAR Section 2.3.3.2.2, "Tower Design," (for the new BBNPP operational tower) includes a one-sentence cross-reference to Section 2.3.3.1.2, which is a description of the SSES pre-operational tower. Please revise FSAR Section 2.3.3.2.2 to include a more complete description of the planned operational tower design for BBNPP, including the type of equipment that will be used in the new tower.

**Response:**

The BBNPP operational meteorological tower will be an open-lattice steel tower approximately 197 ft (60 m) in height.

Equipment will include sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation. Sensor accuracies and resolutions will meet those presented in Table 2 of RG 1.23, Revision 1. The wind sensors will be mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors will also be mounted in a direction perpendicular to the primary two wind directions (up- and down-valley). Wind measurements will be made at 33 ft (10 m) and 197 ft (60 m). Ambient temperature and dew point or wet bulb temperature will be measured at 33 ft (10 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shields will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature will be measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation will be measured at or near the base of the tower and will be equipped with a wind shield.

FSAR Section 2.3.3 and Environmental Report Section 6.4.2 will be revised to include a more complete description of the operational tower design, including equipment that will be used in the new tower as shown below. FSAR Table 2.3-182 "BBNPP Meteorological Tower Instrument Types, Specifications and Accuracies for Operational Program" will be added to the FSAR.

**COLA Impact:**

The BBNPP FSAR will be revised as follows:

**2.3.3.2 Operational Meteorological Program**

Table ~~2.3-144~~ 2.3-182 presents information on the BBNPP meteorological tower instrument specifications.

**2.3.3.2.2 Tower Design**

The BBNPP meteorological tower is provided in Section ~~2.3.3.1.2~~ an open-lattice steel tower approximately 197 ft (60 m) in height.

**2.3.3.2.3 Instrumentation**

Information relating to the primary meteorological tower is a 200 ft (61 m) steel-framed tower.

The primary data recording system used for the BBNPP meteorological tower is a digital data acquisition system. All telemetry transmitters, translators and a data logger are housed in a weatherproof cinder block building. This building has thermostatically controlled heating and air conditioning. The secondary recording system is the Process Information and Control System (PICS).

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield. BBNPP meteorological tower instrument types, specifications and accuracies are presented in Table 2.3-182.

Table 2.3-182 will be added to the FSAR as follows:

**Table 2.3-182: {BBNPP Meteorological Tower Instrument Types, Specifications and Accuracies for Operational Program}**

<u>Measurement</u>	<u>System Accuracy*</u>	<u>Measurement Resolution*</u>
<u>Wind Speed</u>	<u>+/- 0.2 m/s (+/- 0.45 mph) or 5% of observed wind speed starting threshold &lt;0.45 m/s (1 mph)</u>	<u>0.1 m/s or 0.1 mph</u>
<u>Wind Direction</u>	<u>+/- 5 degree starting threshold &lt;0.45 m/s (1 mph)</u>	<u>1.0 degree</u>
<u>Ambient Temperature</u>	<u>+/- 0.5°C (+/- 0.9°F)</u>	<u>0.1°C or 0.1°F</u>
<u>Vertical Temperature Difference</u>	<u>+/- 0.1°C (+/- 0.18°F)</u>	<u>0.01°C or 0.01°F</u>
<u>Dew Point Temperature</u>	<u>+/- 1.5°C (+/- 2.7°F)</u>	<u>0.1°C or 0.1°F</u>
<u>Wet-Bulb Temperature</u>	<u>+/- 0.5°C (+/- 0.9°F)</u>	<u>0.1°C or 0.1°F</u>

Relative Humidity	+/- 4%	0.1%
Precipitation (water equivalent)	+/- 10% for a volume equivalent to 2.54 mm (0.1 in) of precipitation at a rate <50 mm/h (<2 in/h)	0.25 mm or 0.01 in
Time	+/- 5 min	1 min
* Resolution and accuracy requirements consistent with Regulatory Guide 1.23, Revision 1, March 2007		

The BBNPP Environmental Report will be revised as follows:

**6.4.2.2 Tower Design**

The BBNPP meteorological tower is a 200 ft (61 m) open lattice steel framed tower, an open-lattice steel tower approximately 197 ft (60 m) in height.

The primary data recording system used for the BBNPP meteorological tower is a digital data acquisition system. All telemetry transmitters, translators and a data logger are housed in a weatherproof cinder block building. This building has thermostatically controlled heating and air conditioning. The secondary recording system is the Process Information and Control System (PICS).

**6.4.2.3 Instrumentation**

The BBNPP meteorological tower was sited and wind sensors oriented according to the guidance provided in RG 1.23, Revision 1, Regulatory Position C.3.

The instrumentation for the meteorological tower is outlined in Table 6.4-3.

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield.

**Question 02.03.03-6:**

Both FSAR Section 2.3.3.1.3, "Instrumentation" (for the Pre-Application and Pre-operational Meteorological Measurement Program) and FSAR Section 2.3.3.2, "Operational Meteorological Measurement Program," state that Table 2.3-144 presents information on the SSES pre-operational and BBNPP operational meteorological tower instrument specifications, respectively. However, FSAR Section 2.3.3.1.7, "Deviations from Guidance from Regulatory Guide 1.23," (describing the pre-operational program) states that the resolution of the existing (SSES) sensors does not meet the measurement resolution recommended in Regulatory Guide 1.23, Revision 1, whereas FSAR Section 2.3.3.2.7, "Deviations from Guidance from Regulatory Guide 1.23," (describing the operational program) does not address measurement resolution. Please clarify whether the pre-operational and operational programs meet the meteorological system accuracies and resolutions stated in Regulatory Position C.4 of RG 1.23.

**Response:**

The BBNPP pre-operational and operational programs meet the meteorological system accuracies and resolutions stated in Regulatory Guide (RG) 1.23, Revision 1, Regulatory Position C.4.

BBNPP FSAR Section 2.3.3.1.7 and ER Section 6.4.1.7 erroneously state that the resolution of the existing sensors on the BBNPP pre-operational meteorological tower does not meet the guidance provided in Table 2 of RG 1.23, Revision 1. The resolution of the BBNPP pre-operational meteorological sensors is identified in FSAR Table 2.3-144 and meets the guidance provided in Table 2 of RG 1.23, Revision 1.

FSAR Section 2.3.3.1.7 and ER Section 6.4.1.7 will be revised to correct the error. FSAR Table 2.3-144 will be revised to match ER Table 6.4-1.

The sensors on the BBNPP operational meteorological tower will meet the system accuracy and resolution guidance provided in Table 2 of RG 1.23, Revision 1. FSAR Section 2.3.3.2.3 and ER Section 6.4.2.3 will be revised as shown below.

**COLA Impact:**

The BBNPP FSAR will be revised as follows:

**2.3.3.1.7      Deviations to Guidance from Regulatory Guide 1.23**

The pre-operational meteorological monitoring program for BBNPP deviates from the guidance provided in Regulatory Guide 1.23, Revision 1 (NRC, 2007). The SSES meteorological tower is not at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement. Further discussion is provided in ER Section 6.4.1.1. The SSES meteorological tower is not at the same elevation as the finished BBNPP grade. The SSES tower location was selected to assure the meteorological tower was located on level, open terrain at a suitable distance from any nearby obstructions and complies with the guidance of the second proposed revision to Regulatory Guide 1.23, Revision 1 (NRC, 1986). ~~Also, the resolution of the existing sensors does not meet the measurement resolution recommended in Regulatory Guide 1.23, Revision 1.~~

The tower, guyed wire, and anchor inspections are performed once every 5 years instead of an annual inspection for tower and guyed wire and an anchor inspection of once every 3 years as provided in Regulatory Guide 1.23, Revision 1.

The wind instruments are not mounted on the tower such that the instruments are approximately perpendicular to the primary two wind directions. Further discussion is provided in Section 2.3.3.1.3.

**2.3.3.2.3 Instrumentation**

Information relating to the primary meteorological tower is a 200 ft (61 m) steel framed tower.

The primary data recording system used for the BBNPP meteorological tower is a digital data acquisition system. All telemetry transmitters, translators and a data logger are housed in a weatherproof cinder block building. This building has thermostatically controlled heating and air conditioning. The secondary recording systems is the Process Information and Control System (PICS).

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield. BBNPP meteorological tower instrument types, specifications and accuracies are presented in Table 2.3-182.

FSAR Table 2.3-144 title will be revised as follows:

**Table 2.3-144 – {Primary Meteorological Tower Instrument Types, Specifications and Accuracies for Pre-Application and Pre-Operational and Operational Programs}**

Characteristics	Requirements*	Specifications
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A new table will be added to the FSAR as follows:

**Table 2.3-182: {BBNPP Meteorological Tower Instrument Types, Specifications and Accuracies for Operational Program}**

<u>Measurement</u>	<u>System Accuracy*</u>	<u>Measurement Resolution*</u>
<u>Wind Speed</u>	<u>+/- 0.2 m/s (+/- 0.45 mph) or 5% of observed wind speed starting threshold &lt;0.45 m/s (1 mph)</u>	<u>0.1 m/s or 0.1 mph</u>
<u>Wind Direction</u>	<u>+/- 5 degree starting threshold &lt;0.45 m/s (1 mph)</u>	<u>1.0 degree</u>
<u>Ambient Temperature</u>	<u>+/- 0.5°C (+/- 0.9°F)</u>	<u>0.1°C or 0.1°F</u>
<u>Vertical Temperature Difference</u>	<u>+/- 0.1°C (+/- 0.18°F)</u>	<u>0.01°C or 0.01°F</u>
<u>Dew Point Temperature</u>	<u>+/- 1.5°C (+/- 2.7°F)</u>	<u>0.1°C or 0.1°F</u>
<u>Wet-Bulb Temperature</u>	<u>+/- 0.5°C (+/- 0.9°F)</u>	<u>0.1°C or 0.1°F</u>
<u>Relative Humidity</u>	<u>+/- 4%</u>	<u>0.1%</u>
<u>Precipitation (water equivalent)</u>	<u>+/- 10% for a volume equivalent to 2.54 mm (0.1 in) of precipitation at a rate &lt;50 mm/h (&lt;2 in/h)</u>	<u>0.25 mm or 0.01 in</u>
<u>Time</u>	<u>+/- 5 min</u>	<u>1 min</u>
<u>* Resolution and accuracy requirements consistent with Regulatory Guide 1.23, Revision 1, March 2007</u>		

The BBNPP Environmental Report will be revised as follows:

**6.4.1.7 Deviations to Guidance from Regulatory Guide 1.23**

The pre-operational meteorological monitoring program for BBNPP deviates from the guidance provided in Regulatory Guide 1.23, Revision 1 (NRC, 2007). The SSES meteorological tower is not at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement. Further discussion is provided in Section 6.4.1.1. The SSES meteorological tower is not at the same elevation as the finished BBNPP grade. The SSES tower location was selected to assure the meteorological tower was located on level, open terrain at a suitable distance from any nearby obstructions and complies with the guidance of the second proposed revision to Regulatory Guide 1.23, Revision 1 (NRC, 1986). Also, the resolution of the existing sensors does not meet the measurement resolution recommended in Regulatory Guide 1.23, Revision 1.

The tower, guyed wire, and anchor inspections are performed once every 5 years instead of an annual inspection for tower and guyed wire and an anchor inspection of once every 3 years as provided in Regulatory Guide 1.23, Revision 1.

The wind instruments are not mounted on the tower such that the instruments are approximately perpendicular to the primary two wind directions. Further discussion is provided in Section 6.4.1.3.

#### **6.4.2.3 Instrumentation**

The BBNPP meteorological tower was sited and wind sensors oriented according to the guidance provided in RG 1.23, Revision 1, Regulatory Position C.3.

The instrumentation for the meteorological tower is outlined in Table 6.4-3.

Equipment includes sensors to measure wind speed, wind direction, ambient temperature, delta temperature, dew point or wet bulb temperature, and precipitation.

Sensor accuracies and resolutions will meet those presented in Table 2 of Regulatory Guide 1.23, Revision 1. The wind sensors are mounted at a distance equal to at least twice the horizontal dimension of the tower (e.g., the side of a triangular tower). The wind sensors are mounted in a direction perpendicular to the primary two primary wind directions (up- and down-valley). Wind measurements are made at 33 ft (10 m) and 197 ft (60 m). The temperature sensors will be mounted in downward-pointing fan-aspirated shields. The fan-aspirated shield will be at least one and one half times the tower horizontal width away from the nearest point on the tower. Delta temperature is measured between the 197 ft (60 m) and 33 ft (10 m) levels of the tower. Precipitation is measured at or near the base of the tower and will be equipped with a wind shield.